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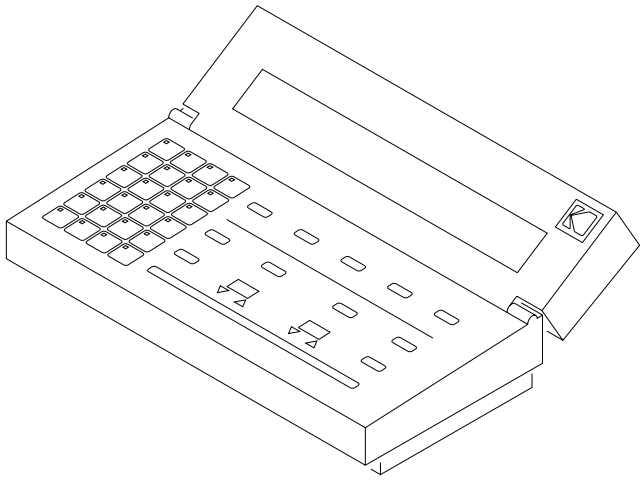
18JUL97

Repairing the LASER PRINTER KEYPAD a component of the 3230 *Kodak Ektascan* 2180 LASER PRINTER, 3226 *Kodak Ektascan* 1120 LASER PRINTER, 3210 *Kodak Ektascan* LASER PRINTER Model 100 XLP, 3222 *Kodak Ektascan* LASER PRINTER Model 100 XLP Upgrade, 3140 *Kodak Ektascan* IMAGE MANAGER

Purpose: Use this procedure to repair only the KEYPAD with the tilting MESSAGE DISPLAY, identified by the figure below.
Order a replacement KEYPAD only if the KEYPAD cannot be repaired.



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HEALTH IMAGING

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Repair Time: Approximately 30 minutes maximum

Special Tools: PUMP, VACUUM DESOLDER TL-3314 or WICK, SOLDER 1C8129

Parts Status: Available from Service Parts Management

Parts Requirements: KEYPAD Repair Kit, Part Number 9B1510
Note: Order the Repair Kit once and order replacement parts. Feedback information about the parts to SCAN.

KEYPAD Repair kit, Part Number 9B1510
(Parts are available separately)

Item	Part Number	Description	Qty.
1	981821	DC-DC CONVERTER (incl. adhesive pad)	2
2	911355	MESSAGE DISPLAY BOARD	1
3	2B6808	KEYPAD OVERLAY/BOARD ASSEMBLY	1
4	9B1506	STANDOFF, hex, male/female	6
5	9B1507	BUSHING, hex, threaded, female/female	6
6	914278	SHORT STANDOFF	6
7	914279	LONG STANDOFF	6
8	914276	SPACER, plastic	6
9	914287	SHORT SCREW, plastic	6
10	914288	LONG SCREW, plastic	6
11	575822	WASHER, metal	6
12	1C8148	*LOCKTITE 414* ADHESIVE, 1 oz. bottle	1
13	6C5726	CASE and PART BOX	1

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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

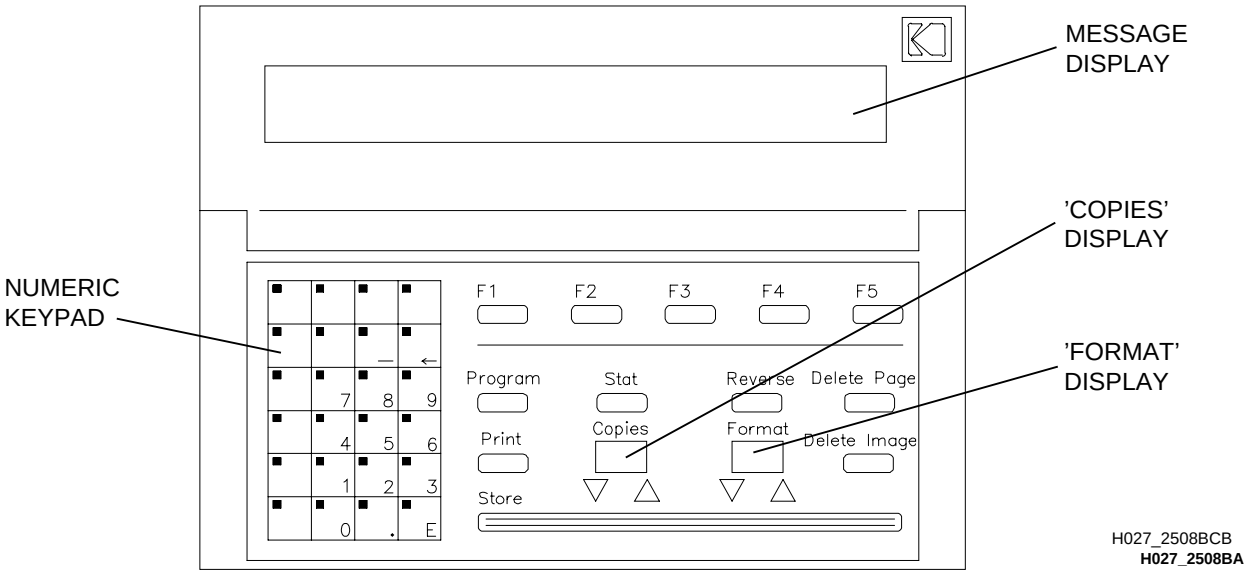
Important

Use qualified personnel to make the repair.

Diagnosing the KEYPAD Malfunction

Note

The PRINTER and INTERFACE must be ON and in the READY mode before you diagnose the KEYPAD. You cannot diagnose the KEYPAD correctly if the PRINTER and INTERFACE are in the START-UP or SELF-TEST modes.

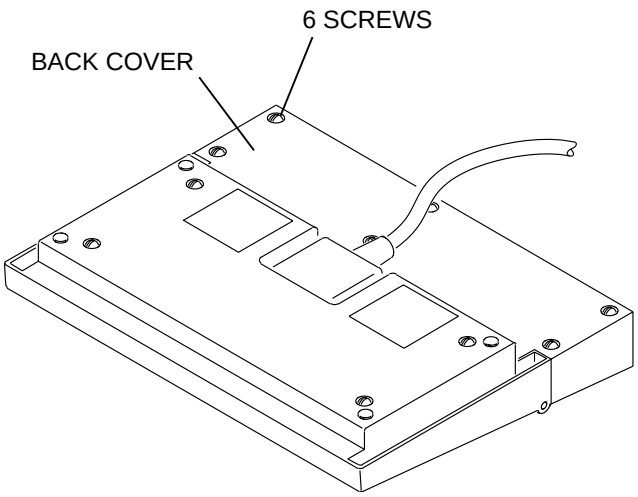


[1] Check that the KEYPAD CABLE is connected correctly.

[2] Press the Format ▲ key several times. As you press the key, observe the illumination of the NUMERIC KEYPAD and listen for a beep each time the key is pressed.

[3] Study the following and check for incorrect or erratic displays:

- MESSAGE DISPLAY
- NUMERIC KEYPAD
- 'COPIES' DISPLAY
- 'FORMAT' DISPLAY



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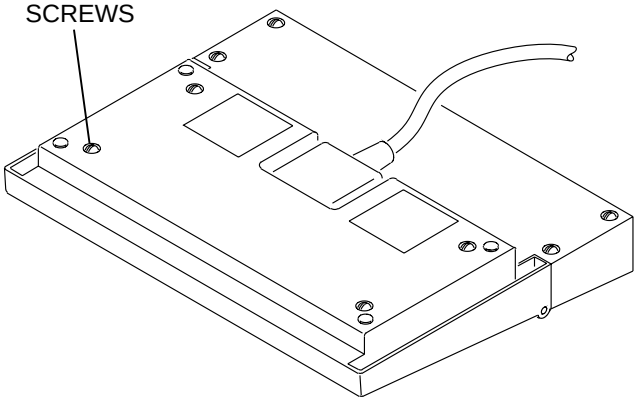
ESD
Possible damage from electrostatic discharge.

[4] If the KEYPAD does not operate correctly, remove the six screws and BACK COVER from the MESSAGE DISPLAY.

[5] Check that the CONNECTOR on the RIBBON CABLE engages the MESSAGE DISPLAY BOARD.



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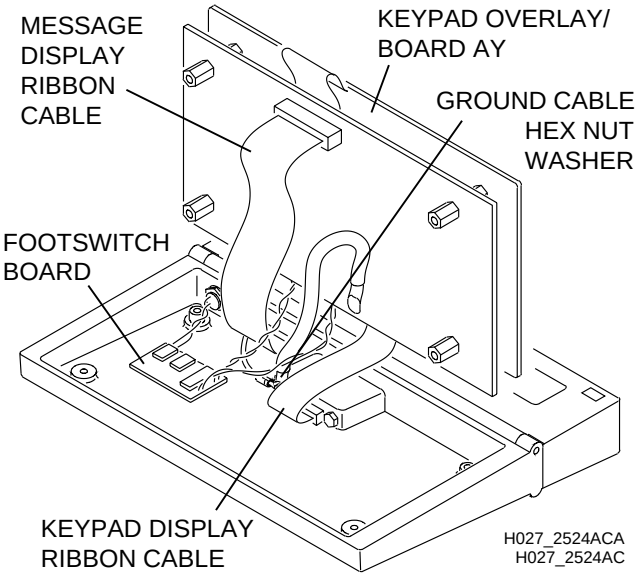
ESD
Possible damage from electrostatic discharge.

[6] Remove the four SCREWS and WASHERS from the back of the KEYPAD. Turn the KEYPAD over.



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[7] Carefully lift the KEYPAD OVERLAY/ CIRCUIT BOARD ASSEMBLY out of the KEYPAD.

Caution
Be careful not to damage the wires and ribbon cables attached to the ASSEMBLY.

[8] Check that the CONNECTORS on the following CABLES and BOARDS are engaged:

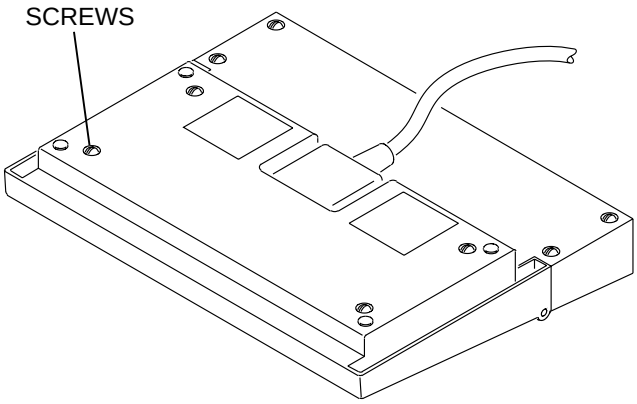
- MESSAGE DISPLAY RIBBON CABLE
- KEYPAD DISPLAY RIBBON CABLE
- RIBBON CABLE between the KEYPAD OVERLAY and CIRCUIT BOARD
- FOOTSWITCH BOARD

[9] Use Steps 2 and 3 to check the KEYPAD operation again.

[10] Use the following table to help you select the correct repair procedure.

Malfunction Description	Probable Cause/ Corrective Action	Procedure Reference
The NUMERIC KEYPAD is not illuminated. The COPIES and FORMAT DISPLAYS are not illuminated. The MESSAGE DISPLAY is not illuminated.	The DC-DC CONVERTER might have failed. Check and replace.	**Replacing the DC-DC CONVERTER**, page 6.
The MESSAGE DISPLAY is not illuminated or the illumination is not uniform. The NUMERIC KEYPAD is illuminated. The COPIES and FORMAT DISPLAYS are illuminated.	The MESSAGE DISPLAY BOARD might have failed. Check and replace.	**Replacing the MESSAGE DISPLAY BOARD**, page 11.
The KEYPAD operation or response is erratic. The KEYPAD illumination is incorrect or erratic.	The KEYPAD OVERLAY/BOARD AY might have failed. Check and replace.	**Replacing the KEYPAD/OVERLAY BOARD AY**, page 13.

Replacing the DC-DC CONVERTER



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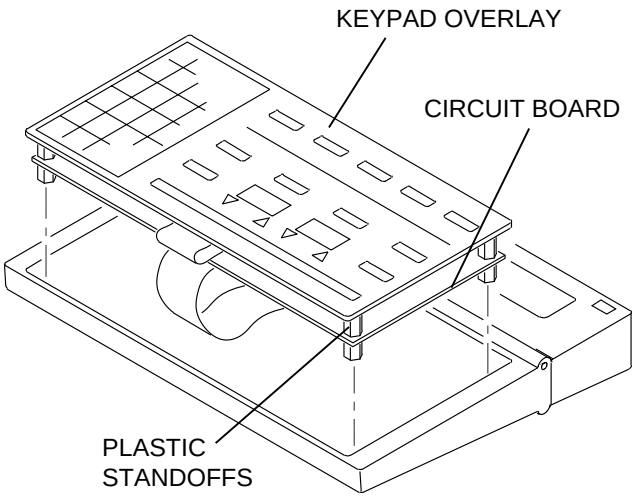
ESD
Possible damage from electrostatic discharge.

[1] Remove the four SCREWS and WASHERS from the back of the KEPYAD. Keep the SCREWS and WASHERS.



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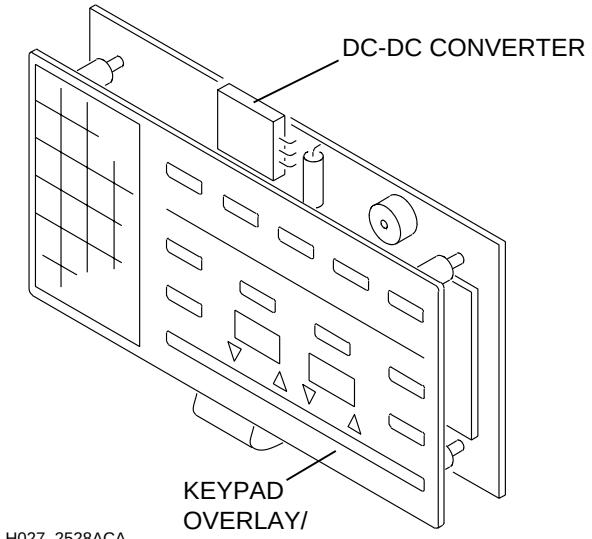
[2] Carefully lift the KEYPAD OVERLAY/ CIRCUIT BOARD ASSEMBLY out of the KEYPAD.

Caution
Be careful not to damage the wires and ribbon cables attached to the ASSEMBLY.

[3] Check the KEYPAD OVERLAY/BOARD ASSEMBLY for damage.

Note
There are plastic STANDOFFS between the KEYPAD OVERLAY and CIRCUIT BOARD. If only one or two STANDOFFS are broken, continue with the next step.

If more than two of the plastic STANDOFFS are broken, you should replace the KEYPAD OVERLAY/ CIRCUIT BOARD ASSEMBLY. Advance to the procedure **Replacing the KEYPAD OVERLAY/ CIRCUIT BOARD ASSEMBLY** on page 13.



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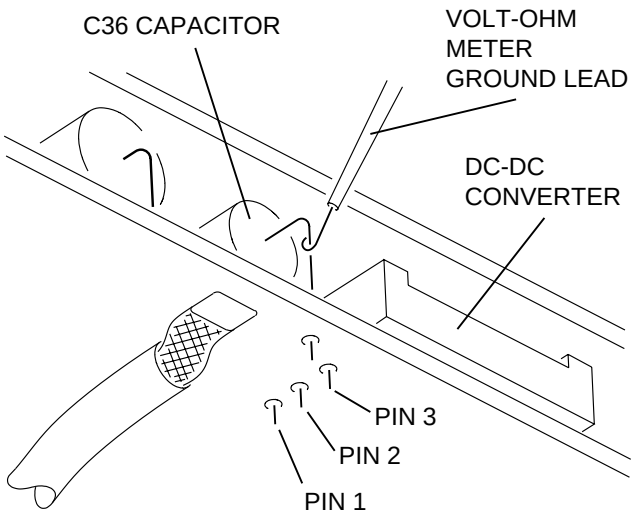

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[4] Locate the DC-DC CONVERTER.

Important

There are 2 styles of DC-DC CONVERTER. You can replace the DC-DC CONVERTER only if it is the same style as the DC-DC CONVERTER replacement, Part Number 981821, in the KEYPAD Repair Kit.

[5] Compare the DC-DC CONVERTER on the CIRCUIT BOARD to the replacement DC-DC CONVERTER in the Repair Kit.

[6] If the DC-DC CONVERTER on the CIRCUIT BOARD is the same style as the replacement part, advance to Step 7.
If the DC-DC CONVERTER is not the same style as the replacement part, you must replace the KEYPAD OVERLAY/CIRCUIT BOARD ASSEMBLY. Advance to the procedure **Replacing the KEYPAD OVERLAY/ CIRCUIT BOARD ASSEMBLY** on page 13.

[7] Use the following table to help you measure the input and output voltages of the DC-DC CONVERTER. The KEYPAD must be energized to check the voltage.

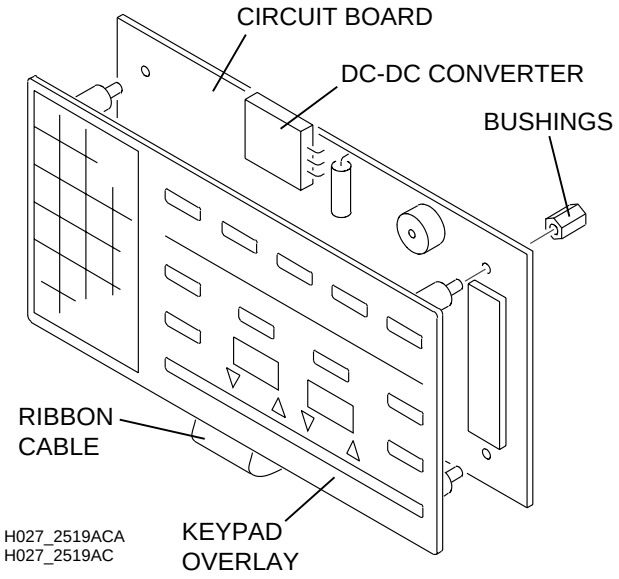
Caution

Be careful not to cause a short circuit between any of the pins on the DC-DC CONVERTER.

Voltmeter Connections		
Red	**Black (ground)**	**Requirement (VDC)**
Pin 1	C36	> +7.0 Volts (Input)
Pin 3	C36	5.0 +/- 0.1 Volts (Output)

[8] If the input and output voltages are correct, advance to the procedure **Replacing the KEYPAD OVERLAY/BOARD ASSEMBLY** on page 13.

[9] If either voltage is not correct, continue with the next step.

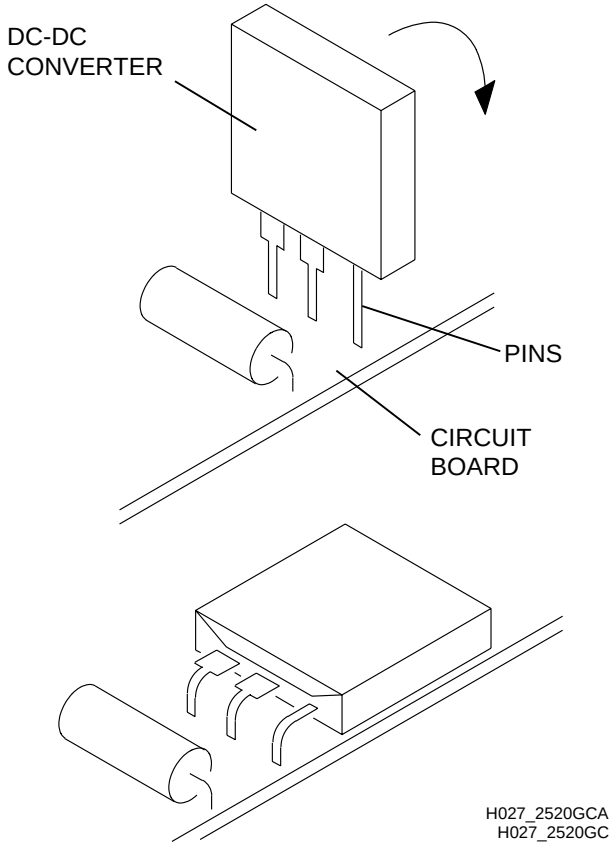


[10] De-energize the LASER PRINTER or IMAGE MANAGER.

[11] Loosen and remove the plastic BUSHINGS from the back of the CIRCUIT BOARD. Keep the BUSHINGS.

[12] Separate the KEYPAD OVERLAY from the CIRCUIT BOARD. Be careful not to damage the RIBBON CABLE between them.

[13] Remove the solder from the pins connecting the DC-DC CONVERTER to the CIRCUIT BOARD.



Important

Two of the pins on the DC-DC CONVERTER are wider at one end and the third pin is uniformly narrow. Insert the narrow pin into the hole at the edge of the BOARD.

[14] Insert the pins of the new DC-DC CONVERTER through the correct holes in the CIRCUIT BOARD.

[15] Solder the pins of the DC-DC CONVERTER to the CIRCUIT BOARD.

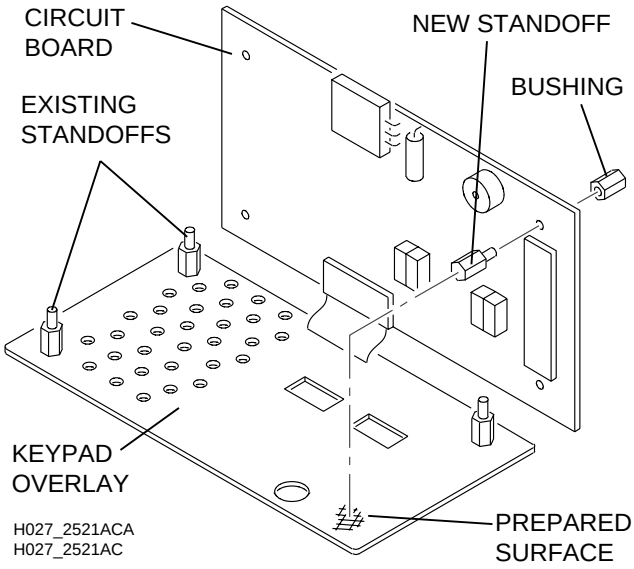
[16] Remove the paper from the adhesive pad on the back of the DC-DC CONVERTER.

[17] Bend the pins and press the DC-DC CONVERTER so that the adhesive pad adheres to the CIRCUIT BOARD.

Caution

Be careful not to cause a short circuit between the pins.

[18] Energize the LASER PRINTER or IMAGE MANAGER.



[19] Measure the input and output voltages of the new DC-DC CONVERTER and compare these voltages to the table. If the voltages are not correct, advance to the procedure **Replacing the KEYPAD OVERLAY/BOARD ASSEMBLY** on page 13.

[20] If the input and output voltages of the new DC-DC CONVERTER are correct and none of the STANDOFFS are broken, assemble the KEYPAD OVERLAY and the CIRCUIT BOARD using the 4 BUSHINGS. Advance to Step 26.

[21] If 1 or 2 STANDOFFS are broken, remove any pieces of the old STANDOFFS from the back of the KEYPAD OVERLAY. The area where you attach the new STANDOFFS must be flat. Sandpaper or a file can be used to make the area flat.
A broken STANDOFF could be repaired with adhesive if the pieces can be aligned.

[22] Install each new STANDOFF and BUSHING.

Warning

Do not allow adhesive to contact skin.

[23] Place one drop of *Loktite 414* ADHESIVE to the end of each new STANDOFF.

[24] Assemble the KEYPAD OVERLAY and CIRCUIT BOARD. Attach and tighten BUSHINGS to the existing STANDOFFS.

[25] Apply pressure to the KEYPAD OVERLAY/ CIRCUIT BOARD ASSEMBLY for 60 seconds until the ADHESIVE is dry enough to handle.

Important

Handle the ASSEMBLY carefully. The ADHESIVE does not reach full strength for 24 hours.

[26] Place the KEYPAD OVERLAY/BOARD ASSEMBLY into the KEYPAD. Be careful not to damage the RIBBON CABLES and other wires.

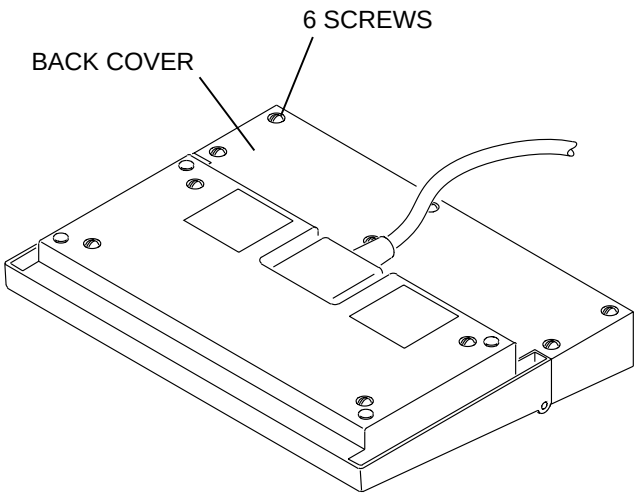
[27] Inset the four screws and washers into the back of the KEYPAD and tighten them. If any SCREWS are broken, replace them.

[28] Use the procedure **Diagnosing the KEYPAD Malfunction** on page 3 to check for the correct operation of the KEYPAD.

[29] Use any available diagnostics or equipment to check the correct operation of all the KEYPAD components and functions. For example, on some equipment you can use the “KEYPAD LED/Tone Test” and “KEYPAD Recognition Test” under the Diagnostic Functions of the Interface CES Main Menu.

[30] If the KEYPAD does not operate correctly, replace it.

Replacing the MESSAGE DISPLAY BOARD



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[1] De-energize the LASER PRINTER or IMAGE MANAGER.

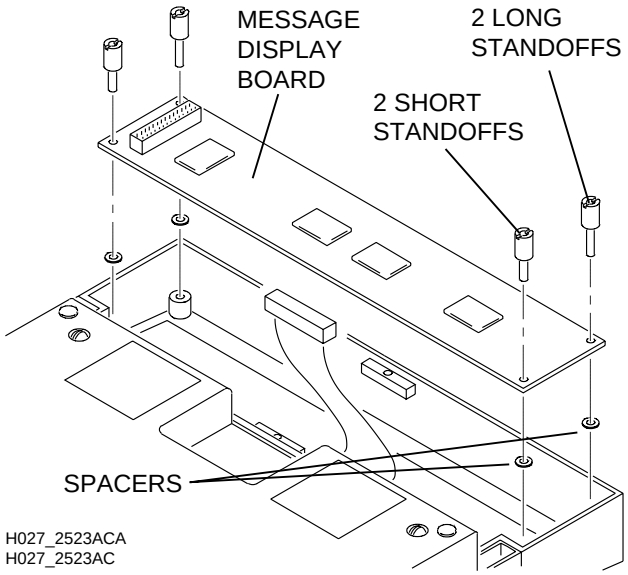
[2] Disconnect the KEYPAD CABLE from the back of the KEYPAD.

[3] If there is a FOOTSWITCH connected to the KEYPAD, disconnect the FOOTSWITCH CABLE from the back of the KEYPAD.

ESD
Possible damage from electrostatic discharge.

[4] Remove the six SCREWS from the back of the MESSAGE DISPLAY. Keep the SCREWS.

[5] Remove the BACK COVER.



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[6] Disconnect the RIBBON CABLE from the MESSAGE DISPLAY BOARD.

Note
Some KEYPADS might have a metal strip between the RIBBON CABLE and MESSAGE DISPLAY BOARD.

[7] Loosen and remove the plastic STANDOFFS from the MESSAGE DISPLAY BOARD. Keep the STANDOFFS.

[8] Carefully pry the MESSAGE DISPLAY BOARD from the KEYPAD and keep the SPACERS.

[9] Install the new MESSAGE DISPLAY BOARD and the SPACERS. Be sure the CONNECTOR SOCKET of the MESSAGE DISPLAY BOARD is on the correct side.

[10] Attach and tighten the four plastic STANDOFFS.

Important
There are 2 styles of STANDOFFS. Insert the longer STANDOFFS in the top holes.

[11] Attach the RIBBON CABLE to the MESSAGE DISPLAY BOARD.

[12] Install the BACK COVER and secure it with the six SCREWS.

[13] Connect the KEYPAD CABLE to the KEYPAD.

[14] If there is a FOOTSWITCH, connect the FOOTSWITCH CABLE to the KEYPAD.

[15] Energize the LASER PRINTER or IMAGE MANAGER.

[16] Use the procedure **Diagnosing the KEYPAD Malfunction** on page 3 to check for the correct operation of the KEYPAD.

[17] Use any available diagnostics or equipment to check the correct operation of all the KEYPAD components and functions. For example, on some equipment you can use the “KEYPAD LED/Tone Test” and “KEYPAD Recognition Test” under the Diagnostic Functions of the Interface CES Main Menu.

[18] If the KEYPAD does not operate correctly, replace it. Remove the new MESSAGE DISPLAY BOARD from the broken KEYPAD and keep it.

Replacing KEYPAD OVERLAY/BOARD ASSEMBLY

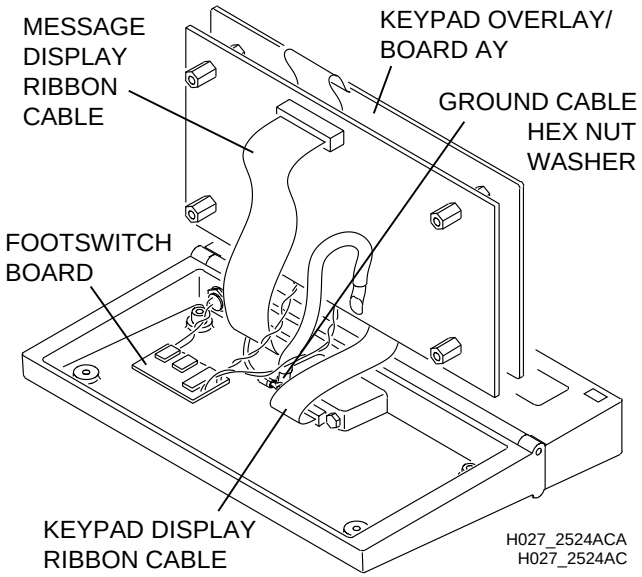
[1] De-energize the LASER PRINTER or IMAGE MANAGER.

[2] Disconnect the KEYPAD CABLE from the back of the KEYPAD.

[3] If there is a FOOTSWITCH connected to the KEYPAD, disconnect the FOOTSWITCH CABLE from the back of the KEYPAD.

ESD

Possible damage from electrostatic discharge.



[4] Remove the four SCREWS and WASHERS from the back of the KEYPAD. Keep the SCREWS and WASHERS.

[5] Remove the KEYPAD OVERLAY/BOARD ASSEMBLY from the KEYPAD.

[6] Disconnect the MESSAGE DISPLAY RIBBON CABLE from the CIRCUIT BOARD.

[7] Disconnect the KEYPAD RIBBON CABLE from the CIRCUIT BOARD.

[8] Loosen and remove the HEX NUT from the GROUND CABLE stud inside the KEYPAD.

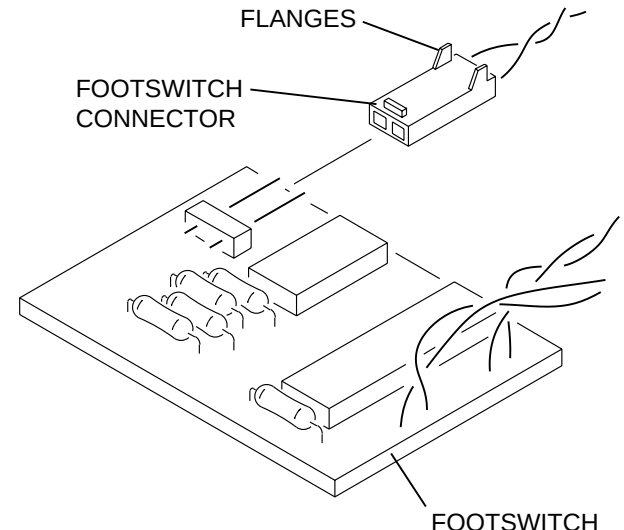
[9] Remove the LOCK WASHER and CIRCUIT BOARD GROUND CABLE.

[10] Carefully pry the FOOTSWITCH BOARD from the ADHESIVE PAD.

Note

Some KEYPAD styles do not have the FOOTSWITCH feature and will not have a FOOTSWITCH BOARD or FOOTSWITCH CONNECTOR inside. The replacement KEYPAD OVERLAY/BOARD AY will operate correctly in all KEYPADS.

[11] If the KEYPAD does not have the FOOTSWITCH feature, advance to Step 15.



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Important

Observe the position of the flanges on the FOOTSWITCH WIRE CONNECTOR. The flanges might be up or down. You must attach the CONNECTOR to the new FOOTSWITCH BOARD in the same position or the FOOTSWITCH will not operate.

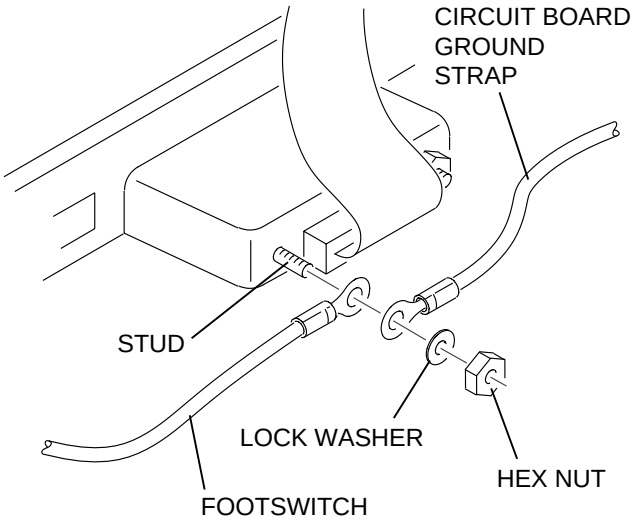
[12] Disconnect the FOOTSWITCH WIRE CONNECTOR from the FOOTSWITCH BOARD.

[13] Attach the FOOTSWITCH WIRE CONNECTOR to the FOOTSWITCH BOARD on the new KEYPAD OVERLAY/BOARD ASSEMBLY. Be sure that the flanges on the connector are in the same position as they were on the old FOOTSWITCH BOARD.

[14] If the old adhesive pad is attached to the bottom of the KEYPAD base, remove it.

[15] Remove the paper from the adhesive pad on the back of the new FOOTSWITCH BOARD.

[16] Place the new FOOTSWITCH BOARD into the correct position in the KEYPAD and press it down.



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[17] Attach the CIRCUIT BOARD GROUND CABLE to the STUD using the LOCK WASHER and HEX NUT. See the figure.

[18] Connect the KEYPAD RIBBON CABLE and the MESSAGE DISPLAY RIBBON CABLE.

[19] Assemble the KEYPAD OVERLAY/BOARD ASSEMBLY and the KEYPAD.

Caution

Be careful not to damage the RIBBON CABLES and other wires.

[20] Inset the four SCREWS with WASHERS into the back of the KEYPAD and tighten them.

[21] Connect the KEYPAD CABLE to the KEYPAD.

[22] If there is a FOOTSWITCH, connect the FOOTSWITCH CABLE to the KEYPAD.

[23] Energize the LASER PRINTER or IMAGE MANAGER.

[24] Use the procedure **Diagnosing the KEYPAD Malfunction** on page 3 to check for the correct operation of the KEYPAD.

[25] If there is a FOOTSWITCH, check that it operates correctly. If it does not, the FOOTSWITCH CONNECTOR might be incorrectly connected to the FOOTSWITCH BOARD in the KEYPAD.

[26] Use any available diagnostics or equipment to check the correct operation of all the KEYPAD components and functions. For example, on some equipment you can use the "KEYPAD LED/Tone Test" and "KEYPAD Recognition Test" under the Diagnostic Functions of the Interface CES Main Menu.

[27] If the KEYPAD does not operate correctly, replace it. Remove the new KEYPAD OVERLAY/BOARD ASSEMBLY from the broken KEYPAD and keep it.

Publication Change Notice Table

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
JUL 97	XP3210-6	2632-349	All	xp3210_6_18jul97.doc	new publication

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